

## **Team :- 4 Review 2**

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### **Project Title :- Hostel Mess Feedback & Voting System**

The Hostel Mess Feedback and Voting System is a Java-based console application designed to collect, store, and analyze student feedback for daily meals provided in the mess. The project allows students to vote for their preferred meals, rate them, and help the mess committee improve quality through transparent and anonymous data collection.

It uses file I/O for persistent data storage instead of a database and follows a modular structure with clean code and error handling.

#### **Objectives**

- Allow students to vote for Breakfast, Lunch, and Dinner daily.
- Enable meal rating (1 to 5 stars).
- Prevent duplicate voting for the same meal on the same day.
- Allow the admin to view:
  - All votes and ratings.
  - Most popular meals.
  - Average ratings per meal.
  - Date-wise vote summaries.
- Maintain data integrity and robustness using error handling and validations.

# 1. Core Feature Implementation

This system implements all core functionalities required for a mess feedback solution:

- **User Authentication** (Student Login with attempt limit)
- **Meal Voting System** (Breakfast, Lunch, Dinner – Daily voting allowed)
- **Meal Rating System** (1–5 stars rating for meals)
- **Admin Dashboard**
  - View all votes with filters (by date, user)
  - View top meals by votes
  - View average meal ratings
- **File I/O Based Data Persistence** (no database used, simulating real storage)

*Optional features like text-based histograms, exporting summary, and rating tracking are also added, demonstrating excellent feature integration.*

# 2. Error Handling and Robustness

All user inputs (vote choice, login credentials, rating) are validated.

- All file operations are **wrapped in try-catch** blocks
- Invalid inputs are gracefully handled with messages

Proper messages shown for:

- Invalid inputs
- Already voted meals
- Exceeded login attempts

try-catch used in file operations to avoid crash on I/O errors.

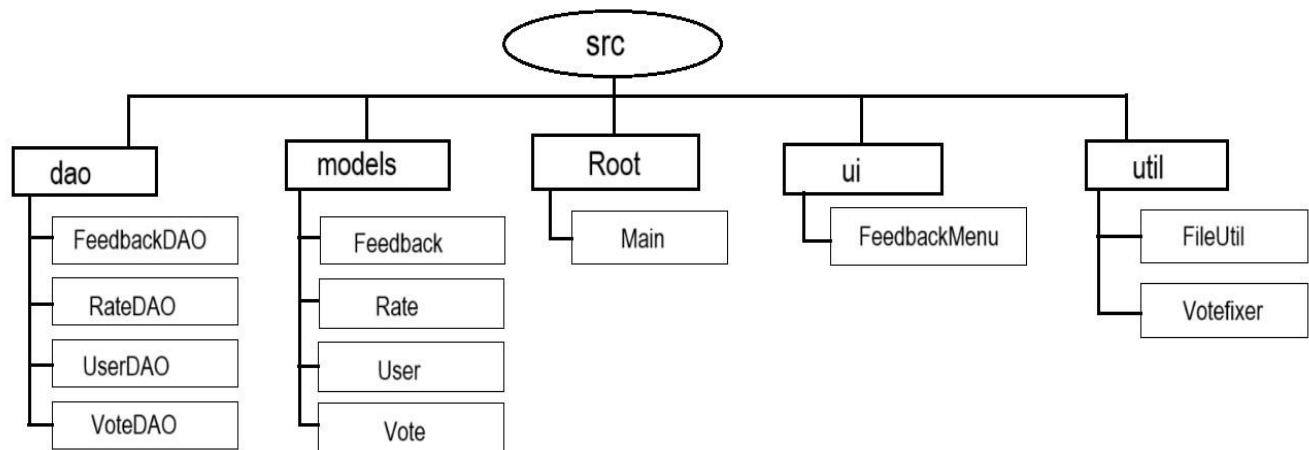
- **Corrupt lines** in vote or rating files are detected and skipped with warnings
- Invalid lines in data files are skipped safely with messages (Skipping invalid vote line...)
- App doesn't crash on incorrect input types

*Includes input bounds checking and handles edge cases like duplicate votes, missing data files, and invalid menu options.*

### 3. Integration of Components

- The project follows a **modular layered structure**:
  - models: User, Vote, Rate, Feedback
  - dao: Handles CRUD operations
  - ui: Manages user/admin interface
  - util: File I/O helpers
- All classes interact through clean interfaces.
- Data flow between modules is clearly handled via DAO and service-like abstraction.

*Each layer interacts cleanly — UI layer never directly accesses the file, ensuring separation of concerns.*



### 4. Event Handling and Processing

- All menu options trigger well-defined functions
- Voting and rating operations are broken into **logical steps**
- Admin features like **filtering by date/user, top meal, and histogram** are handled through delegated method calls

*No lag or confusion in user interaction, and each event is handled immediately with clear output and prompts.*

### 5. Data Validation

- User input is validated for:
  - Correct numeric entry
  - Meal choice within valid range
  - Ratings between 1 to 5

- Meal voting is restricted to once per meal per day per user.
- Login has a 3-attempt limit to prevent brute force.

*Future improvement: Add username/password regex validation or use a central Validator class.*

## **6. Code Quality & Innovation**

- Code is clean, readable, and well-commented.
- Innovative Features Included:
  - **Meal Rating System**
  - **Top Meal by Votes**
  - **Histogram-based summary**
  - **Vote Summary Export to File**
  - **Date-wise summary analysis**
- Uses LocalDate and Console.readPassword() for modern, secure coding.

*Also includes login attempt limit, vote duplication prevention, and rating feedback.*

## **7. Project Documentation & Setup**

- **Folder Structure:**

<b>Folder/File</b>	<b>Purpose</b>
models/	Data structures (User, Vote, Rate).
dao/	File I/O operations to read/write models.
util/	Utilities like FileUtil for I/O handling.
ui/	User and Admin menu logic.
Main.java	Starting point of the program.
data/	Stores .txt files used for saving votes, users, and ratings.

### **Setup Requirements:**

- JDK (Java SE 8+)
- IDE (IntelliJ / Eclipse / VS Code / Notepad++)
- File-based data storage (no database needed)

➤ No external dependencies

➤ **Files Auto-Created on First Run:**

```
Veg Biryani: 1 votes
Paneer Butter Masala: 2 votes
Chole Bhature: 1 votes
Daal Chawal And Chokha: 1 votes
Puri Sabji: 1 votes
Idli Dosa Sambhar Chatni: 1 votes
```

Summary.txt

```
0,4,3,2025-06-04
3,1,4,2025-06-05
4,2,4,2025-06-05
5,3,2,2025-06-06
```

Ratings.txt

```
0,Bipin Nayak,Bipin@123,student
0,Deepak Singh,Deepak@123,admin
0,deepak,robinsingh,student
0,Neeraj Rai,Neeraj@123,student
0,Abhinav Singh,Abhinav@123,student
0,Aditya Kumar,Aditya@123,student
0,Dilkhush,Dilkhush@123,student
1,Bipin Nayak,Bipin@123,false
2,Deepak Singh,Deepak@123,false
3,Amit Singh,Amit@123,false
4,Umar Tyagi,umar@123,false
5,Ayush Ranjan,Ayush@123,false
```

Users.txt

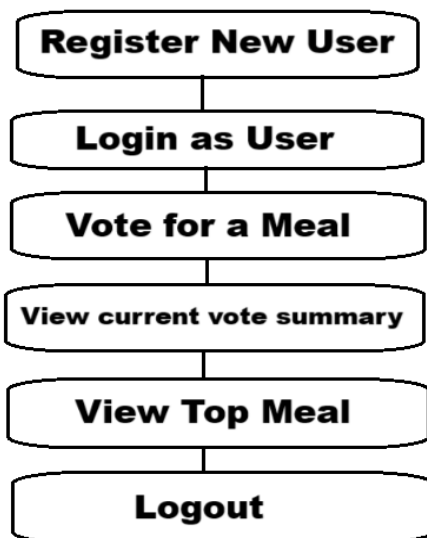
```
24994,0,3,2025-05-29,Unknown
87775,0,3,2025-06-01,Unknown
17564,0,5,2025-06-03,Unknown
87776,0,9,2025-06-04,Unknown
87777,0,6,2025-06-04,Unknown
87778,0,4,2025-06-04,Unknown
87779,3,1,2025-06-05,Unknown
1,4,7,2025-06-05,Breakfast
2,4,9,2025-06-05,Lunch
87780,4,2,2025-06-05,Dinner
87781,5,3,2025-06-06,Lunch
```

Votes.txt

➤ **Tested Scenarios:**

- Voting multiple meals in a day
- Voting restrictions
- Handling corrupted data
- Exported summary and admin tools tested

## Project Flow and Screenshots



Welcome to Hostel Mess Feedback System

1. Register
2. Login
3. Admin Login
4. Exit

Enter choice: 1  
Enter username: Amit Singh  
Enter password: amit123  
Registration successful.

1. Register
2. Login
3. Admin Login
4. Exit

Enter choice: 2

--- User Login ---

Enter username: Amit Singh  
Enter password: amit123  
Login successful. Welcome, Amit Singh!

--- User Menu ---

1. Vote for a meal
2. View current vote summary
3. View top meal
4. Logout

Enter choice: 1  
Select meal type:

1. Breakfast
2. Lunch

```
1. Veg Biryani
2. Rajma Chawal
3. Paneer Butter Masala
4. Chole Bhature
5. Dal Chawal And Chokha
6. Puri Sabji
7. Khichdi
8. Kheer Puri
9. Idli Dosa Sambhar Chatni
Enter your choice (1-9): 5
Your vote has been recorded✅. Thank you!
Rate this meal (1-5): 3
```

--- User Menu ---

1. Vote for a meal
2. View current vote summary
3. View top meal
4. Logout

Enter choice: 2

--- Vote Summary ---

```
Veg Biryani : 1 votes [#]
Rajma Chawal : 1 votes [#]
Paneer Butter Masala : 3 votes [###]
Chole Bhature : 1 votes [#]
Dal Chawal And Chokha : 2 votes [##]
Puri Sabji : 1 votes [#]
Khichdi : 1 votes [#]
Idli Dosa Sambhar Chatni : 2 votes [##]
```

```

--- User Menu ---
1. Vote for a meal
2. View current vote summary
3. View top meal
4. Logout
Enter choice: 3
Most Voted Meal Today: Paneer Butter Masala

--- User Menu ---
1. Vote for a meal
2. View current vote summary
3. View top meal
4. Logout
Enter choice: 4
Logging out...

```

```

1. Register
2. Login
3. Admin Login
4. Exit
Enter choice: 3
Enter admin password: admin123
Admin login successful.

```

## Admin Login

```

--- Admin Menu ---
1. View all votes with usernames
2. Filter votes by date
3. Filter votes by username
4. Show top meal today
5. Export vote summary to file
6. Show date-wise voting summary
7. Logout
Enter choice: 1
All Votes:
User: Dilkhush, Meal Choice: Paneer Butter Masala, Date: 2025-05-29
User: Dilkhush, Meal Choice: Paneer Butter Masala, Date: 2025-06-01
User: Dilkhush, Meal Choice: Dal Chawal And Chokha, Date: 2025-06-03
User: Dilkhush, Meal Choice: Idli Dosa Sambhar Chatni, Date: 2025-06-04
User: Dilkhush, Meal Choice: Puri Sabji, Date: 2025-06-04
User: Dilkhush, Meal Choice: Chole Bhature, Date: 2025-06-04
User: Amit Singh, Meal Choice: Veg Biryani, Date: 2025-06-05
User: Umar Tyagi, Meal Choice: Khichdi, Date: 2025-06-05
User: Umar Tyagi, Meal Choice: Idli Dosa Sambhar Chatni, Date: 2025-06-05
User: Umar Tyagi, Meal Choice: Rajma Chawal, Date: 2025-06-05
User: Ayush Ranjan, Meal Choice: Paneer Butter Masala, Date: 2025-06-06
User: Amit Singh, Meal Choice: Dal Chawal And Chokha, Date: 2025-06-07

```

## View all votes with usernames

```

--- Admin Menu ---
1. View all votes with usernames
2. Filter votes by date
3. Filter votes by username
4. Show top meal today
5. Export vote summary to file
6. Show date-wise voting summary
7. Logout
Enter choice: 2
Enter date (yyyy-MM-dd): 2025-06-05
Votes on 2025-06-05:
User: Amit Singh, Meal: Veg Biryani
User: Umar Tyagi, Meal: Khichdi
User: Umar Tyagi, Meal: Idli Dosa Sambhar Chatni
User: Umar Tyagi, Meal: Rajma Chawal

```

## Filter votes by date

```

--- Admin Menu ---
1. View all votes with usernames
2. Filter votes by date
3. Filter votes by username
4. Show top meal today
5. Export vote summary to file
6. Show date-wise voting summary
7. Logout
Enter choice: 3
Enter username: Dilkhush
Votes by Dilkhush:
Meal: Paneer Butter Masala, Date: 2025-05-29
Meal: Paneer Butter Masala, Date: 2025-06-01
Meal: Dal Chawal And Chokha, Date: 2025-06-03
Meal: Idli Dosa Sambhar Chatni, Date: 2025-06-04
Meal: Puri Sabji, Date: 2025-06-04
Meal: Chole Bhature, Date: 2025-06-04

```

### Filter votes by username

```

--- Admin Menu ---
1. View all votes with usernames
2. Filter votes by date
3. Filter votes by username
4. Show top meal today
5. Export vote summary to file
6. Show date-wise voting summary
7. Logout
Enter choice: 5
Vote summary exported to summary.txt

```

### Export vote summary to file

```

--- Admin Menu ---
1. View all votes with usernames
2. Filter votes by date
3. Filter votes by username
4. Show top meal today
5. Export vote summary to file
6. Show date-wise voting summary
7. Logout
Enter choice: 4
Most Voted Meal Today: Paneer Butter Masala

```

### Show top meal today

```

--- Date-wise Voting Summary ---|
Date: 2025-05-29
    Paneer Butter Masala: 1 votes

Date: 2025-06-01
    Paneer Butter Masala: 1 votes

Date: 2025-06-03
    Dal Chawal And Chokha: 1 votes

Date: 2025-06-04
    Chole Bhature: 1 votes
    Puri Sabji: 1 votes
    Idli Dosa Sambhar Chatni: 1 votes

Date: 2025-06-05
    Veg Biryani: 1 votes
    Khichdi: 1 votes
    Rajma Chawal: 1 votes
    Idli Dosa Sambhar Chatni: 1 votes

Date: 2025-06-06
    Paneer Butter Masala: 1 votes

Date: 2025-06-07
    Dal Chawal And Chokha: 1 votes

```

### Show date-wise voting summary

## Challenges Faced

During the development of the **Hostel Mess Feedback System**, several technical and design-related challenges were encountered:

- **File I/O Management:** Ensuring efficient reading/writing from text files without corrupting data, especially while handling votes, ratings, and user details.
- **Data Consistency:** Avoiding duplication of votes and managing vote limits per user per day across multiple meal types.
- **User Authentication:** Implementing secure login with password masking, login attempt limits, and admin authentication.
- **Error Handling:** Preventing crashes due to malformed data in files (e.g., handling null votes, parsing errors, or incorrect formats).
- **Data Filtering and Summary:** Building logic to filter votes by date/username and summarizing the results in a readable, accurate format.
- **Code Modularity:** Designing the system in a structured way using DAO, Model, and UI packages while keeping code readable and maintainable.

## Conclusion

The **Hostel Mess Feedback System** successfully enables students to cast votes and rate daily meals. It also provides the admin with powerful tools to:

- View all votes and ratings.
- Export vote summaries.
- Analyze the most popular meals.
- Monitor voting trends date-wise and user-wise.

The project demonstrates effective use of **Java Core**, **File Handling**, **OOP**, and **basic data analytics**. It ensures both user and admin functionalities are intuitive and reliable in a console-based setup.



## Future Scope & Upgrades

This system can be significantly upgraded for broader utility and better user experience:

1. **Graphical User Interface (GUI):** Build a modern GUI using Java Swing or JavaFX for easier interaction.
2. **Database Integration:** Use MySQL or SQLite instead of file storage to improve data integrity, scalability, and querying power.
3. **Meal Customization:** Allow hostel admins to add/edit meal options dynamically.
4. **Chart-based Analytics:** Display pie charts, bar graphs, or histograms for vote summaries and ratings.
5. **Mobile/Web App Version:** Build a mobile or web-based version for better accessibility.
6. **Notifications:** Send daily voting reminders to users through email or app notifications.
7. **AI Suggestions:** Analyze trends and suggest preferred meals based on ratings and votes.